

# (19) World Intellectual Property Organization

International Bureau



## 

(43) International Publication Date 22 January 2004 (22.01.2004)

### **PCT**

# (10) International Publication Number WO 2004/006980 A3

(51) International Patent Classification7:

A61B 1/04

(21) International Application Number:

PCT/IL2003/000564

(22) International Filing Date:

8 July 2003 (08.07.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/395,694

11 July 2002 (11.07.2002) US

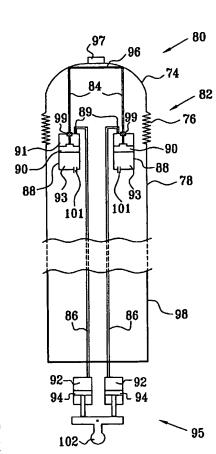
- (71) Applicant (for all designated States except US): SIGHT-LINE TECHNOLOGIES LTD. [IL/IL]; Advanced Technology Center, Matam, 31905 Haifa (IL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): RAZ, Dan [IL/IL]; 62 Habikurim Street, 34577 Haifa (IL). NIR, Reuven

[II], 19100 Kibutz Merhavia (IL). BAROR, Yakov [II], 10 Tidhar Street, Vardia, 34655 Haifa (IL).

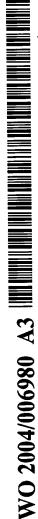
- (74) Agents: SANFORD T. COLB & CO. et al.; P.O. Box 2273, 76122 Rehovot (IL).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,

[Continued on next page]

(54) Title: PISTON-ACTUATED ENDOSCOPIC STEERING SYSTEM



(57) Abstract: Endoscopic steering instrument is provided, including an endoscope (80) having distal (82) and proximal (98) ends thereof. In a preferred embodiment, at least one proximal cylinder (92) is disposed in a vicinity of the proximal end, and at least one proximal piston (94) is slidably coupled to the at least one proximal cylinder. A first distal cylinder (88) is disposed at the distal end, and a first distal piston (90) is slidably coupled to the first distal cylinder. A second distal cylinder (88) is disposed at the distal end, and a second distal piston (90) is slidably coupled to the second distal cylinder. A first tube (86) is coupled to the first distal cylinder and a second tube (86) is coupled to the second distal cylinder.



### WO 2004/006980 A3



SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 12 August 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

### INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL03/00564

A. CLASSIFICATION OF SUBJECT MATTER  IPC(7) : A61B 1/04  US CL : 600/114  According to International Patent Classification (IPC) or to both national classification and IPC  B. FIELDS SEARCHED  Minimum documentation searched (classification system followed by classification symbols)			
U.S.: 600/114, 115, 146-152			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST - search terms: endoscope, piston, cylinder, actuation			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap		Relevant to claim No.
x 	US, 4,962,751 A (KRAUTER) 16 October 1990 (16	.10.1990), See entire document.	1, 2, 4-8, 10, 11, 13- 16
Y			3, 9, 12
A	US 6,162,171 A (NG et al) 19 December 2000 (19.12.2000), See entire document.		1-16
A, P	A, P US 6,485,409 B1 (VOLOSHIN et al) 26 November 2002 (26.11.2002), See document.		1-16
A	2000 (44 04 0000) Garantina damagni		1-16
Further documents are listed in the continuation of Box C. See patent family annex.			
* Special categories of cited documents:  "T" later document published after the international filing date or private and not in conflict with the application but cited to understant.			
"A" document defining the general state of the art which is not considered to be of particular relevance		principle or theory underlying the inve	ention
"E" carlier application or patent published on or after the international filing date  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		"X" document of particular relevance; the considered novel or cannot be conside when the document is taken alone	
		"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination	
"O" document referring to an oral disclosure, use, exhibition or other means being obvious to a person skilled in the art			ie art
"P" document published prior to the international filing date but later than the "&" document member of the same patent family priority date claimed			
Date of the actual completion of the international search		Date of mailing of the international search report  ### Date of mailing of the international search report  ### Date of mailing of the international search report  #### Date of mailing of the international search report  #### Date of mailing of the international search report  ###################################	
25 February 2004 (25.02.2004)		Authorized officer Angle ma	
Name and mailing address of the ISA/US  Mail Stop PCT, Atn: ISA/US		900000 11.70 1000 1 1 00 0	
Commissioner for Patents		Beverly M. Hanagan	
P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Telephone No. (703) 308-0858	

Form PCT/ISA/210 (second sheet) (July 1998)